

IN THE CLAIMS:

Please cancel claims 1-51 without prejudice or disclaimer, and substitute new claims 52-102 therefor as follows:

Claims 1-51 (Cancelled).

52. (New) A tyre for a vehicle wheel comprising:

a carcass structure shaped in a substantially toroidal configuration, the opposite lateral edges of which are associated with respective right-hand and left-hand bead wires to form respective beads;

a belt structure applied in a radially external position with respect to said carcass structure;

a tread band radially superimposed on said belt structure;

at least one layer of crosslinked elastomeric material applied in a radially internal position with respect to said tread band; and

a pair of sidewalls applied laterally on opposite sides with respect to said carcass structure,

wherein said at least one layer of crosslinked elastomeric material has the following characteristics:

a dynamic elastic modulus, measured at 70°C, not lower than 20 MPa; and

a ratio between tensile modulus at 100% elongation and tensile modulus at 10% elongation not lower than 1.5.

53. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a dynamic elastic modulus, measured at 70°C, of 25 MPa to 50 MPa.

54. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a ratio between tensile modulus at 100% elongation and tensile modulus at 10% elongation of 2 to 5.

55. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a dynamic elastic modulus, measured at 23°C, not lower than 30 MPa.

56. (New) The tyre for a vehicle wheel according to claim 55, wherein said at least one layer of crosslinked elastomeric material has a dynamic elastic modulus, measured at 23°C, of 35 MPa to 70 MPa.

57. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a percentage variation of tensile modulus at 10% elongation, measured in a direction substantially parallel to the equatorial plane of the tyre, with respect to tensile modulus at 10% elongation, measured in a direction substantially perpendicular to the equatorial plane of the tyre, not higher than 20%.

58. (New) The tyre for a vehicle wheel according to claim 57, wherein said at least one layer of crosslinked elastomeric material has a percentage variation of tensile modulus at 10% elongation, measured in a direction substantially parallel to the equatorial plane of the tyre, with respect to tensile modulus at 10% elongation,

measured in a direction substantially perpendicular to the equatorial plane of the tyre,
not higher than 15%.

59. (New) The tyre for a vehicle wheel according to claim 58, wherein said at least one layer of crosslinked elastomeric material has a percentage variation of tensile modulus at 10% elongation, measured in a direction substantially parallel to the equatorial plane of the tyre, with respect to tensile modulus at 10% elongation, measured in a direction substantially perpendicular to the equatorial plane of the tyre, not higher than 5%.

60. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a thickness lower than 2 mm.

61. (New) The tyre for a vehicle wheel according to claim 60, wherein said at least one layer of crosslinked elastomeric material has a thickness of 0.5 mm to 1.5 mm.

62. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material is placed between said tread band and said belt structure.

63. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material is placed between said belt structure and said carcass structure.

64. (New) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material is formed by a plurality of coils of a continuous elongated element.

65. (New) The tyre for a vehicle wheel according to claim 52, wherein said elastomeric material comprises:

- (a) at least one diene elastomeric polymer; and
- (b) at least one layered inorganic material having an individual layer thickness of 0.01 nm to 30 nm.

66. (New) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material has an individual layer thickness of 0.05 nm to 15 nm.

67. (New) The tyre for a vehicle wheel according to claim 66, wherein the layered inorganic material has an individual layer thickness of 0.1 nm to 2 nm.

68. (New) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material is present in the elastomeric material in an amount of 1 phr to 120 phr.

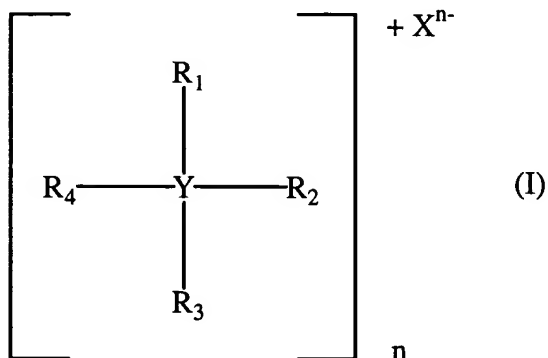
69. (New) The tyre for a vehicle wheel according to claim 68 wherein the layered inorganic material is present in the elastomeric material in an amount of 5 phr to 80 phr.

70. (New) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material is selected from phyllosilicates, smectites, montmorillonite, nontronite, beidellite, volkonskoite, hectorite, saponite, sauconite, vermiculite, halloisite, sericite, or mixtures thereof .

71. (New) The tyre for a vehicle wheel according to claim 70, wherein the layered inorganic material is montmorillonite.

72. (New) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material is treated with a compatibilizer.

73. (New) The tyre for a vehicle wheel according to claim 72, wherein the compatibilizer is selected from the quaternary ammonium or phosphonium salts having general formula (I):



wherein:

Y represents N or P;

R₁, R₂, R₃ and R₄, which may be identical or different, represent a linear or branched C₁-C₂₀ alkyl or hydroxyalkyl group; a linear or branched C₁-C₂₀ alkenyl or hydroxyalkenyl group; a group -R₅-SH or -R₅-NH wherein R₅ represents a linear or branched C₁-C₂₀ alkylene group; a C₆-C₁₈ aryl group; a C₇-C₂₀ arylalkyl or alkylaryl group; a C₅-C₁₈ cycloalkyl group, said cycloalkyl group optionally containing a hetero atom, oxygen, nitrogen or sulphur;

Xⁿ⁻ represents an anion, chlorine ion, sulphate ion or phosphate ion, and

n represents 1, 2 or 3.

74. (New) The tyre for a vehicle wheel according to claim 65, wherein the diene elastomeric polymer has a glass transition temperature below 20°C.

75. (New) The tyre for a vehicle wheel according to claim 74, wherein the diene elastomeric polymer is selected from: natural or synthetic cis-1,4-polyisoprene, 3,4-

polyisoprene, polybutadiene, optionally halogenated isoprene/isobutene copolymers, 1, 3-butadiene/acrylonitrile copolymers, styrene/1,3-butadiene copolymers, styrene/isoprene/1,3-butadiene copolymers, styrene/1, 3-butadiene/acrylonitrile copolymers, or mixtures thereof.

76. (New) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material comprises at least 10% by weight with respect to the total weight of the at least one diene elastomeric polymer of natural rubber

77. (New) The tyre for a vehicle wheel according to claim 76, wherein the elastomeric material comprises 20% by weight to 100% by weight with respect to the total weight of the at least one diene elastomeric polymer of natural rubber.

78. (New) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material further comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

79. (New) The tyre for a vehicle wheel according to claim 78, wherein the elastomeric polymer is selected from: ethylene/propylene copolymers, ethylene/propylene/diene copolymers, polyisobutene, butyl rubbers, halobutyl rubbers, or mixtures thereof.

80. (New) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material comprises at least one carbon black filler.

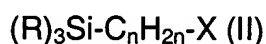
81. (New) The tyre for a vehicle wheel according to claim 80, wherein the carbon black filler has a surface area of not less than 20 m²/g (determined by CTAB absorption as described in Standard ISO 6810:1995).

82. (New) The tyre for a vehicle wheel according to claim 80, wherein the carbon black filler is present in the elastomeric material in an amount of 0.1 phr to 120 phr.

83. (New) The tyre for a vehicle wheel according to claim 82, wherein the carbon black filler is present in the elastomeric material in an amount of 20 phr to 90 phr.

84. (New) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material comprises at least one silane coupling agent.

85. (New) The tyre for a vehicle wheel according to claim 84, wherein the silane coupling agent is selected from a group having at least one hydrolizable silane group which may be identified by the following general formula (II):



wherein the groups R, which may be identical or different, are selected from: alkyl, alkoxy or aryloxy groups or from halogen atoms, on condition that at least one of the groups R is an alkoxy or aryloxy group; n is an integer between 1 and 6 inclusive; X is a group selected from: nitroso, mercapto, amino, epoxide, vinyl, imide, chloro, $-(S)_mC_nH_{2n}-Si-(R)_3$ or $-S-COR$ in which m and n are integers between 1 and 6 inclusive and the groups R are defined as above.

86. (New) The tyre for a vehicle wheel according to claim 84, wherein the silane coupling agent is present in the elastomeric material in an amount of 0.01. phr to 10 phr.

87. (New) The tyre for a vehicle wheel according to claim 86, wherein the silane coupling agent is present in the elastomeric material in an amount of 0.5 phr to 5 phr.

88. (New) The tyre for a vehicle wheel according to claim 65, wherein at least one additional reinforcing filler is present, in an amount of 0.1 phr to 120 phr, in the elastomeric material.

89. (New) The tyre for a vehicle wheel according to claim 88, wherein the reinforcing filler is silica.

90. (New) The tyre for a vehicle wheel according to claim 88, wherein at least, one silane coupling agent is present.

91. (New) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 23°C, of 5 MPa to 25 MPa.

92. (New) The tyre for a vehicle wheel according to claim 91, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 23°C, of 7 MPa to 20 MPa.

93. (New) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 100°C, of 3 MPa to 10 MPa.

94. (New) The tyre for a vehicle wheel according to claim 93, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 100°C, of 3.5 MPa to 8 MPa.

95. (New) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 23°C, of 0.20 to 0.90.

96. (New) The tyre for a vehicle wheel according to claim 95, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 23°C, of 0.30 to 0.70.

97. (New) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 100°C, of 0.10 to 0.35.

98. (New) The tyre for a vehicle wheel according to claim 97, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 100°C, of 0.15 to 0.30.

99. (New) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 23°C, of 65 to 85.

100. (New) The tyre for a vehicle wheel according to claim 99, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 23°C, of from 70 to 80.

101. (New) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 100°C, of 45 to 75.

102. (New) The tyre for a vehicle wheel according to claim 101, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 100°C, of 55 to 66.